FIG.1

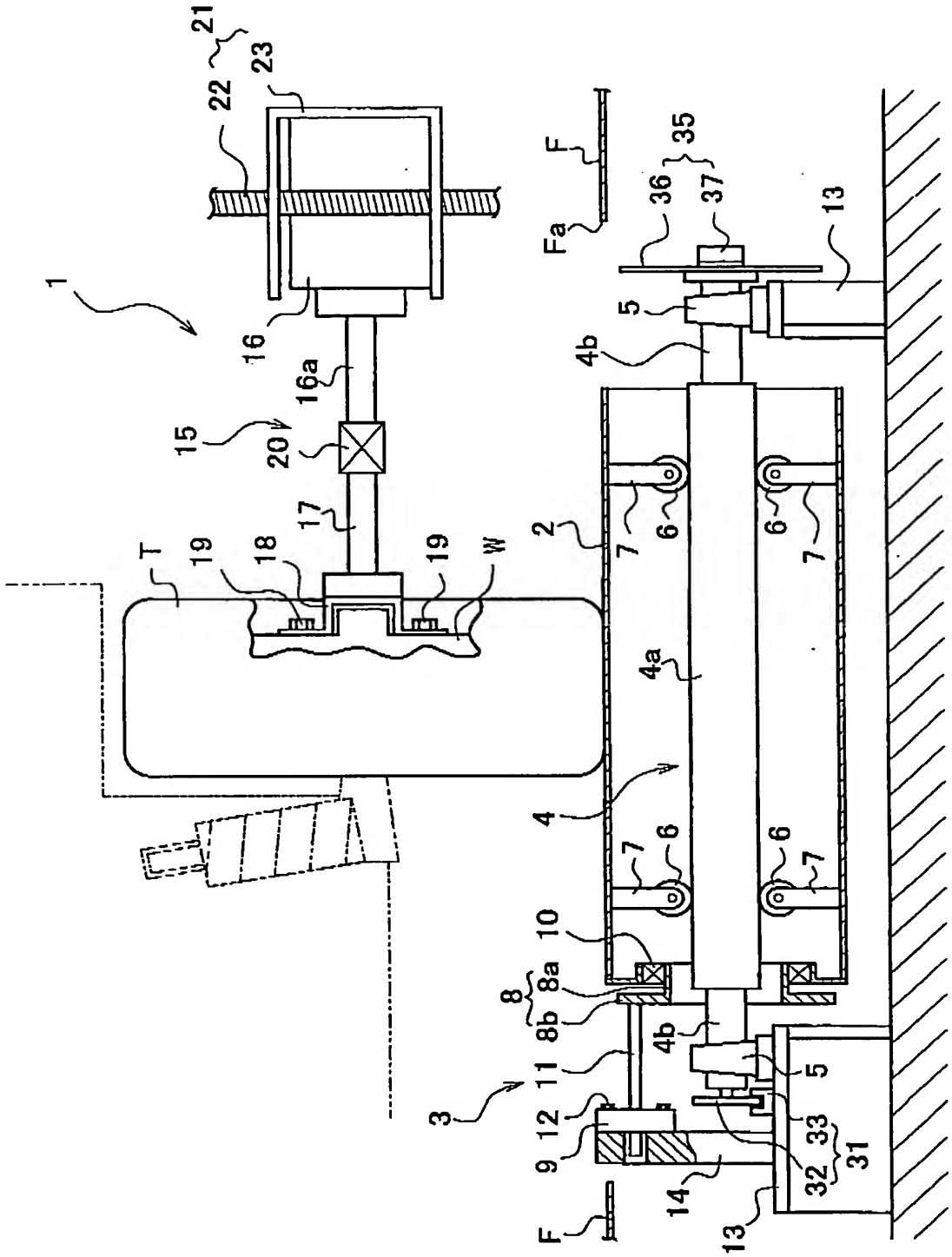

1
2
3
4
4a
4b
5
6
7
8
8a
8b
9
10
11
12
13
14
15
16
16a
17
18
19
20
21
22
23
31
32
33
35
36
37
F
Fa
T
W

FIG.2

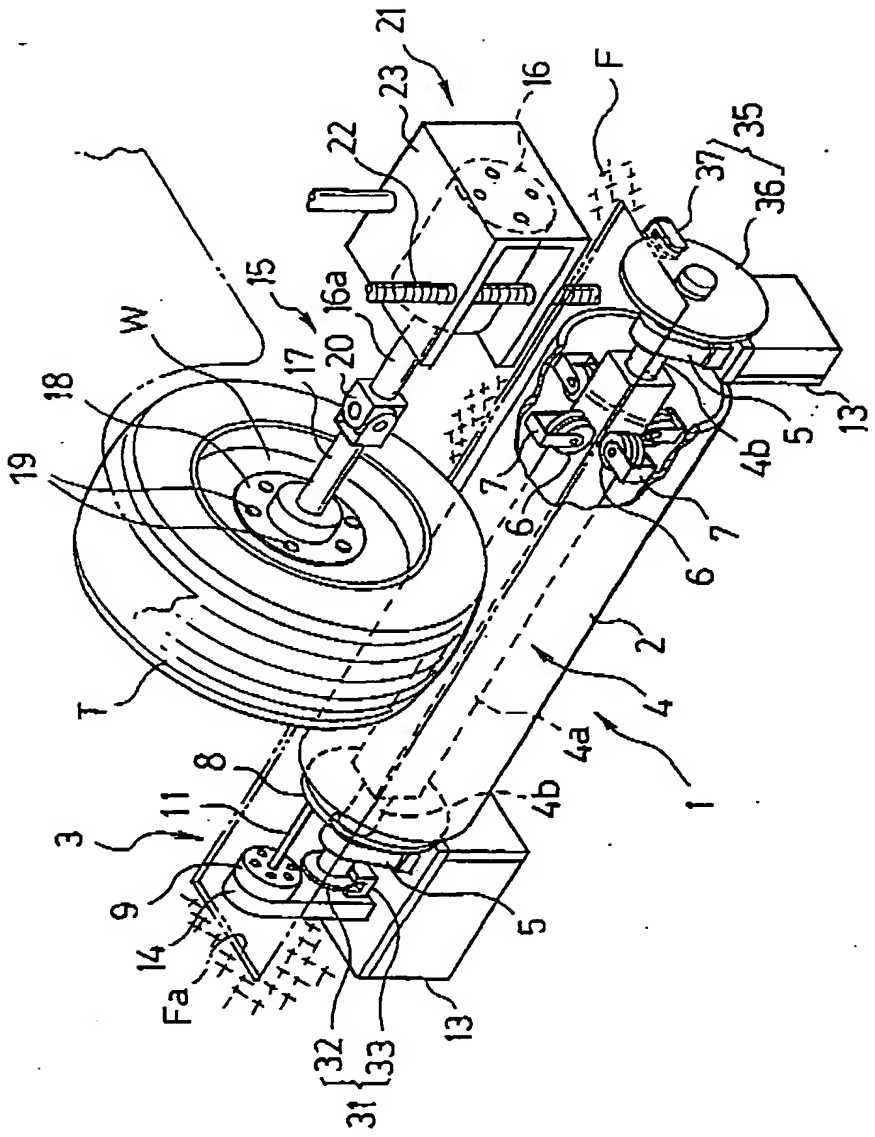

21
23
16
F
22
35
37
36
W
15
16a
17
20
18
19
7
6
4b
5
13
6
7
2
4
T
4a
1
8
4b
11
3
9
14
Fa
5
32
33
31
13

FIG.3

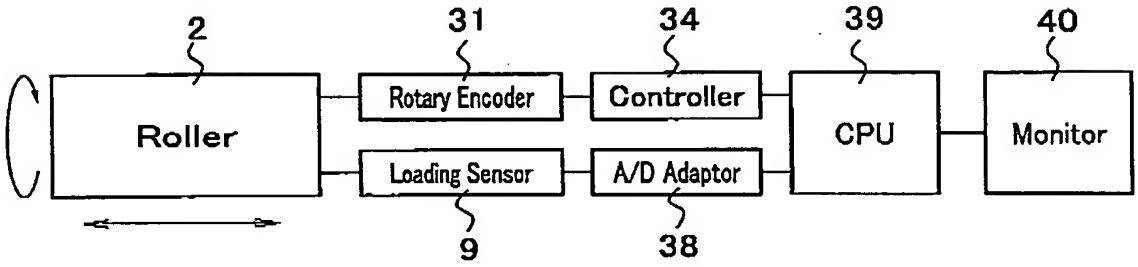
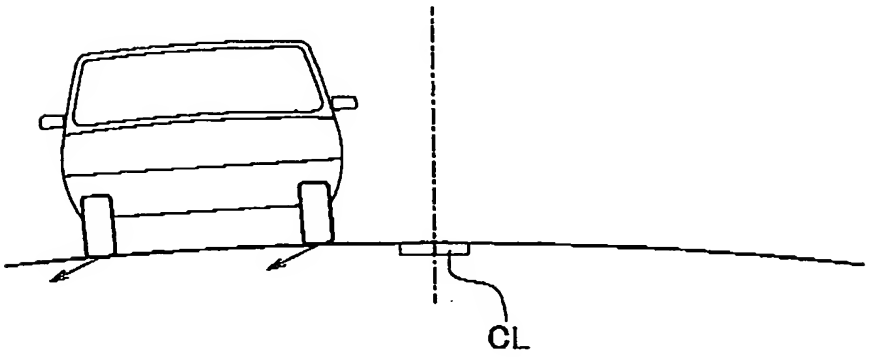

2
31
34
39
40
Roller
Rotary Encoder
Controller
CPU
Monitor
Loading Sensor
A/D Adaptor
9
38

FIG.4


CL